

# REALITY-BASED LIGHT ENVIRONMENT FOR DIGITAL IMAGING IN MOTION PICTURES

## ABSTRACT OF THE DISCLOSURE

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Image-based lighting for use in rendering of digital objects is derived from image data collected from a real motion-picture set. The image data includes sets of correlated images at different exposure levels, each corresponding to a selected location. The image data is processed to define an extended dynamic range panoramic image for each selected set location. The image data is color and intensity corrected based on a scaled reference object. At least key lights are modeled for the set by processing a plurality of such panoramic images. Other lighting may be defined by interpolating from the panoramic images to mathematically define a location-specific set of fill lights. In the alternative, other set lighting may be modeled by projecting panoramic image data onto a dynamically sub-dividable light primitive derived from the set geometry. Any desired object may then rendered using the defined lights, and inserted into a corrected real image of the set at the desired location.

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